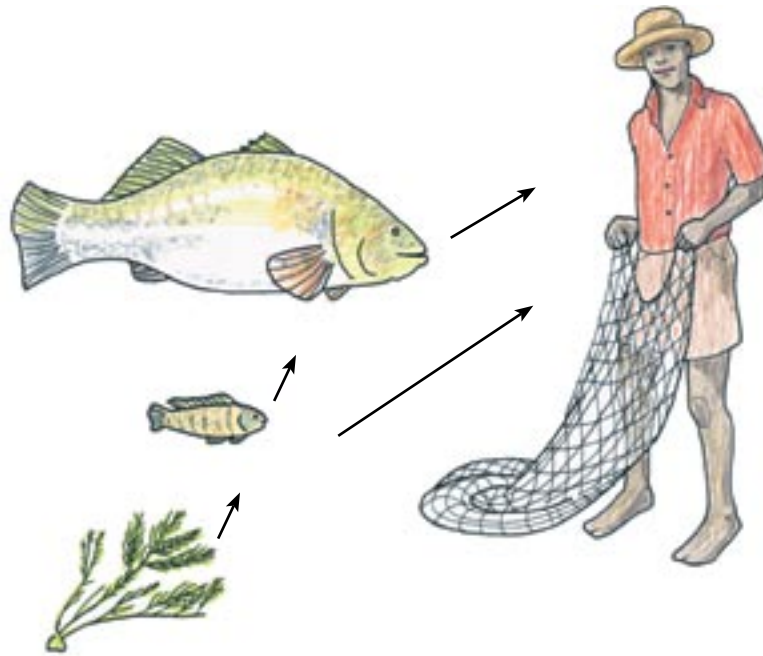


78 Coughing Up Clues



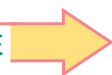
How do introduced species affect other organisms within a habitat? What happens to the populations of native species when a new organism is introduced? Scientists often draw diagrams, called **food webs**, to model the feeding relationships within an ecosystem. By showing what each organism eats, food webs model the energy relationships among species.



A simplified food web of Lake Victoria

How can you find out what an organism eats? One way is to examine its stomach contents. But in the case of owls, you can also examine an owl pellet. An owl pellet is a combination of bones and fur that an owl coughs up, just as a cat coughs up a hairball. Owl pellets are formed when owls swallow their prey whole and their digestive system cannot break down fur and bones. Within 12–24 hours after eating, an owl throws up a pellet. Piles of pellets are often found at the base of the tree on which an owl is perched. These pellets help ecologists learn what and how much owls eat.

CHALLENGE



What can an owl pellet tell you about an owl's diet? How can you use this information to develop part of a food web?

MATERIALS



For each group of four students

- 1 owl pellet
- 1 small petri dish or other small container (optional)
- glue (optional)
- cardboard or paper (optional)



For each student

- 2 pointed wooden sticks

PROCEDURE

1. Use the wooden sticks to carefully pull the owl pellet into four equal-sized pieces. Provide each member of your group with one of the four pieces.
2. Use your pair of sticks to gently separate all of the bones from the fur of your piece of owl pellet.
3. Work with your group to divide all of the bones into groups based on their shapes. Use Table 1, “Guide to Owl Pellet Bones,” to help you.
4. Count and record the number of bones in each of your categories.
5. Try to arrange the bones to make a skeleton of one (or more) animal. Sketch your final arrangement(s).


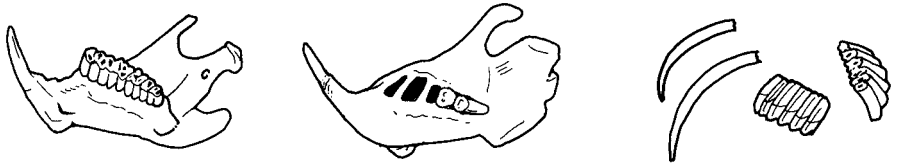

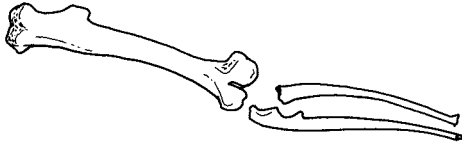
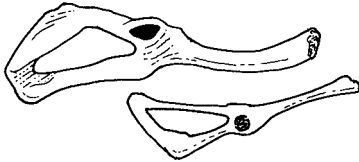
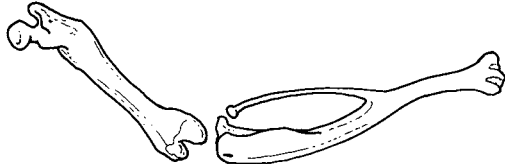
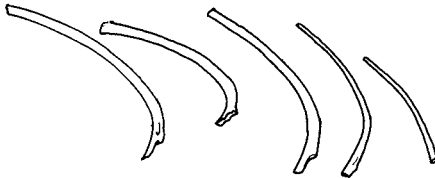
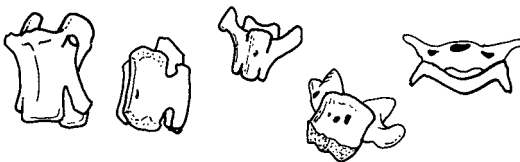
ANALYSIS



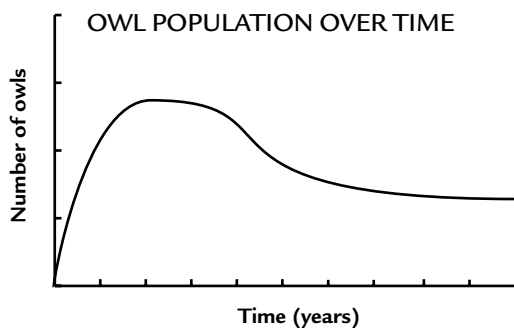
1. What did you learn about the diet of owls from investigating an owl pellet? Include information about the type and number of organisms in an owl’s diet. (Remember that an owl ejects a pellet within 12 to 24 hours after eating.)
2.
 - a. The organisms that you uncovered in your owl pellet are likely to be voles, small rodents similar to mice. Owls also eat other small mammals, such as shrews, and insects. Use this information on owl diet to develop a food web.
 - b. Voles eat mostly plant material such as grass, seeds, roots, and bark. Shrews eat insects. Add these relationships to your food web.
 - c. The great horned owl sometimes eats other owls. It also eats small mammals like voles. Add the great horned owl to your food web.



Table 1: Guide to Owl Pellet Bones

Skulls	
Jaws	
Shoulder blades	
Front legs	
Hips	
Hind legs	
Assorted ribs	
Assorted vertebrae	

3. Copy the graph shown below, which is similar to graphs you made in Activity 77, “Ups and Downs.” It predicts the change in the population of owls as they first move into a new habitat.



- a. Draw a line showing what you think will happen over the same time period to the population of one of the species that owls eat.
- b. Draw a line, using a different color or symbol, showing what you think might happen over the same time period to the population of one of the species that eats owls. Be sure to include a key identifying what species each line represents.
4. **Reflection:** All living things have a place in a food web. What would your personal food web look like?



EXTENSION 1

To identify the skulls you found in your owl pellet and learn more about owl pellets, go to the *Issues and Life Science* page of the SEPUP website.

EXTENSION 2

Research the food web of the introduced species you are studying. What effects, if any, has your species had on native species? What effects do you predict it will have in the future?